

## ABSTRACT OF THE DISCLOSURE

Provided is a sensor material including at least a stimulus-responsive high polymer gel, a bio-substance-responsive material and a light modulation material. A sensor having at least the sensor material and an optical waveguide is also provided. Furthermore, provided are a detection method for a bio-substance using the sensor material in which a change in tone is detected on the basis of swelling or shrinking of the stimulus-responsive high polymer gel, and a detection method for transmitting light using a sensor material in which transmitting light is detected on the basis of swelling or shrinking of the stimulus-responsive high polymer gel.